

Rehabilitation Stroller

Field of Invention

5 The present invention relates to a multi-function rehabilitation stroller, in particular to an improved rehabilitation stroller by which a user can adjust the backrest, fold the stroller easily and step on the brake for stopping.

Background of the Invention

10 As the infants are very animated and energetic, they often tumble down and get the bones broken or dislocated due to the fact that their bones and muscles are not completely developed. Further, infants sometimes get sick and become too weak to walk. In the above cases, those infants should be sat on strollers and looked after by adults. Therefore, there have been various rehabilitation strollers satisfying the
15 above demands.

For example, US Patent No.6105997 discloses a rehabilitation stroller (as shown in Fig.1A) which can be folded to the minimum volume but fails to adjust the backrest. Besides, this kind of stroller cannot be provided with an additional shelf for accommodating articles due to the limit in structure. Thus, it is inconvenient to
20 operate the stroller for an adult having articles in one hand.

US Patent No.6113128 also discloses another rehabilitation stroller (as shown in Fig. 1B). With this kind of stroller, a user can adjust the angle between the seat and the backrest. However, the complicated structure thereof causes the increase of manufacturing cost and total weight.

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Summary of the Invention

In view of the above drawbacks of conventional rehabilitation strollers, the present invention is achieved by the diligence and experience of the applicant. The object of this invention is to provide an improved rehabilitation stroller, which can be
30 additionally provided with a shelf for accommodating articles and a sunshade. The user can adjust the backrest stage by stage, fold the stroller to the minimum volume and step on the brake to safely stop. Further, as the structure of this invention is much simpler, the total weight and cost can be greatly reduced.

According to one aspect of this invention, a rehabilitation stroller is provided,
35 which mainly comprises a backrest portion, a handrail portion, a seat portion, a front leg portion, a shelf portion and a rear leg portion. The backrest portion is connected to the handrail portion by backrest adjusting bolts on both sides and the handrail portion is connected to the front leg portion at a first pivoting point P1 by bolts. The

front leg portion is connected to the shelf portion at a second pivoting point P2 by rivets and the shelf portion is connected to the rear leg portion at a third pivoting point P3 by rivets. The rear leg portion is integrally welding to the seat portion. The backrest portion is also provided with a frame fixing hook on each side. One end of the frame fixing hook is pivotally fixed on the backrest portion by rivets and the other end is provided with an open slot. The open slot of the frame fixing hook is engaged with a frame supporting projection welded on the rear leg portion in order to fixing the frame of the stroller. When a user intends to fold the stroller of this invention, he only needs to laterally draw out two T-shaped copper sleeves provided on the frame fixing hook, and then the frame fixing hook can be moved forwardly to disengage from the frame support projection thereby folding the frame to the minimum volume.

According to another aspect of this invention, a rehabilitation stroller is provided, which mainly comprises a backrest portion, a handrail portion, a seat portion, a front leg portion, a shelf portion and a rear leg portion. The handrail portion is provided with several backrest adjusting holes for adjusting the angle of the backrest stage by stage. The backrest portion is connected to the handrail portion by the backrest adjusting bolts on both sides.

According to another aspect of this invention, a rehabilitation stroller is provided, which mainly comprises a backrest portion, a handrail portion, a seat portion, a front leg portion, a shelf portion and a rear leg portion. The inside of the left and right wheels of the rear leg portion is provided with a braking means comprising a wire, two braking drums, and two braking flakes. Each braking flake is provided with an upper blocking tab, a lower blocking tab and a boss. With the elastic deformation produced by the wire moving along the curved boss of the braking flake, both ends of the wire are axially inserted into the holes of the braking drums thereby achieving the bi-directional braking in one step.

According to another aspect of this invention, a rehabilitation stroller is provided, which mainly comprises a backrest portion, a handrail portion, a seat portion, a front leg portion, a shelf portion and a rear leg portion. The operation of two frame fixing hooks can be simultaneously controlled by a link cooperating with two springs to carry out the folding of the stroller with one hand or foot.

In the rehabilitation stroller of this invention, the backrest portion can be adjusted based on the stature of the infant sat thereon. The forward folding of the stroller is very convenient for the user. Also, the stroller of this invention is much safer because of the efficiently braking device. Further, the simple structure thereof can significantly reduce the total weight and cost.

Brief Description of the Drawings

The structure, features and functions of this invention will be described in detail with reference to the following description together with the accompany drawings, in which:

- 5 Fig. 1A is a perspective view showing a conventional rehabilitation stroller;
 Fig. 1B is a perspective view showing another conventional rehabilitation stroller;
 Fig. 2 is a perspective view showing the rehabilitation stroller of this invention;
 Fig. 3 is a schematic side view showing the rehabilitation stroller of this
10 invention in the state of unfolding;
 Fig. 4 is a schematic side view showing the rehabilitation stroller of this invention in the state of folding;
 Fig. 5A is a perspective view showing the frame fixing hook and associated members in the rehabilitation stroller of this invention, in which the frame fixing hook
15 is engaged with the frame support projection of the rear leg portion;
 Fig. 5B is another perspective view showing the frame fixing hook and associated members in the rehabilitation stroller of this invention, in which the frame fixing hook has disengaged from the frame support projection of the rear leg portion;
 Fig. 6 is a schematic view showing the braking means in the rehabilitation
20 stroller of this invention;
 Fig. 7 is a perspective view showing another embodiment of the rehabilitation stroller of this invention;
 Fig. 8 is a schematic view showing the frame fixing hook and associated members in the another embodiment of the rehabilitation stroller of this invention, in
25 which the frame fixing hook is engaged with the frame support projection of the rear leg portion and the side blocking tube is removed; and
 Fig. 9 is a schematic view showing the backrest adjusting operation of another embodiment of the rehabilitation stroller of this invention.

30 Detailed Description of the Preferred Embodiment

This invention will be described with reference to the accompany drawings. Since the left portion of the frame is symmetrical to the right portion, only the left portion of the frame and the reference numeral of the elements thereof are shown in the specification for simplicity.

- 35 First, the main structure of the rehabilitation stroller of this invention is described. As shown in Fig.3, the rehabilitation stroller of this invention mainly comprises a backrest portion 10, a handrail portion 14, a seat portion 16, a front leg portion 20, a shelf portion 32 and a rear leg portion 34. The backrest portion 10 is connected to

the handrail portion 14 by backrest adjusting bolts 12 on both sides and the handrail portion 14 is connected to the front leg portion 20 at a first pivoting point P1 by bolts. The front leg portion 20 is connected to the shelf portion 32 at a second pivoting point P2 by rivets and the shelf portion 32 is connected to the rear leg portion 34 at a third pivoting point P3 by rivets. The rear leg portion 34 is integrally welding to the seat portion 16. The backrest portion 10 is also provided with a frame fixing hook 40 on each side. One end of the frame fixing hook is pivotally fixed on the backrest portion 10 by a rivet 44 and the other end is provided with an open slot. The open slot of the frame fixing hook is engaged with a frame supporting projection 42 welded on the rear leg portion 34 in order to fix the frame of the stroller. When a user intends to fold the stroller of this invention, he only needs to laterally draw out two T-shaped sleeves 46 provided on the frame fixing hook 40, and then the frame fixing hook 40 can be moved forwardly to disengage from the frame support projection 42 thereby folding the frame to the minimum volume. This folding operation will be described in detail later.

As shown in Fig. 3, the handrail portion 14 is provided with three backrest adjusting holes 11 for adjusting the angle of the backrest portion. The backrest portion 10 is connected to the handrail portion 14 by backrest adjusting bolts 12. The free end of the backrest portion 10 is bent to form a grip portion and a sunshade frame 13 is extended from the top of the backrest portion for placing a pillow and a sunshade thereby providing a more comfortable environment for sitting. The seat portion 16 is internally provided with a seat inner tube 18 for telescoping in the seat portion 16 thereby adjusting the length of the seat based on the demands of the infant sat thereon. A pedal support 22 is welded in the vicinity of the free end of the front leg portion 20 and is provided with a pedal lifting sleeve 26 pivotally connected to a pedal 24. The pedal lifting sleeve 26 and the pedal support 22 are provided with corresponding holes by drilling and thus the height of the pedal 24 can be adjusted by the pedal lifting sleeve 26 sliding along the pedal support 22. When determining a suitable height of the pedal, the user can insert a bolt (not shown) through the holes of the pedal lifting sleeve 26 and the pedal support 22 for fixing the desired height. A bent portion of the free end of the front leg portion 20 is provided with a front wheel support 28. A front wheel 30 is pivotally fitted on the front wheel support for rolling on the ground. The underside of the shelf portion 32 is provided with a shelf for accommodating articles. When the user has articles in hands, he can put these articles in the shelf and makes his hands free. Therefore, it is convenient for the user to operate the stroller of this invention even he has something in his hand.

Next, in order to explain the folding of the rehabilitation stroller of this invention, the structure of the frame fixing hook 40 is described first. With Reference to Figs.

5A and 5B, a frame supporting projection 42 is welded on the rear leg portion 34. The frame fixing hook 40 is a quasi-oval steel plate. One end of the frame supporting hook is pivotally connected to the backrest portion 10 by the rivet 44 and the other end is engaged with the frame supporting projection 42 by an open slot.

5 The frame fixing hook 40 is also provided with a closed slot and a T-shaped copper sleeve 46. The T-shaped copper sleeve 46 is pivotally connected to the backrest portion 10 by a rivet. The closed slot has two engaging holes. The diameter of both engaging holes is identical to that of the T-shaped copper sleeve 46 but the width of the path between two engaging holes is smaller than the outer diameter of the
10 T-shaped copper sleeve 46. Therefore, when the T-shaped copper sleeve 46 has not been drawn out the closed slot due to the restriction of a spring (not shown), the T-shaped copper sleeve cannot move in the closed slot by the barrier of the outer diameter thereof. Only when the T-shaped copper sleeve 46 has been drawn out the closed slot, the frame fixing hook 40 can pivot forwardly around the rivet 44 and in
15 turn the open slot can disengage from the frame supporting boss 42 thereby achieving the folding of the stroller.

Back to Fig. 3, the folding operation of the rehabilitation stroller of this invention will be described. When the frame fixing hook 40 disengages from the frame supporting boss 42 in the above manner, then, the backrest portion 10 and the rear leg
20 portion 34 are not integrally connected together any more. At this time, the user just needs to hold the handrail portion 14. With the demarcation of the first pivoting point P1, the front leg portion 20 and the shelf portion 32 will be folded in the counterclockwise direction and the handrail 14 and the backrest portion 10 will be folded in the clockwise direction thereby achieving the folding state as shown in Fig.
25 4. The applicant wants to emphasize that the folding operation of the stroller of this invention is very convenient for the user. The user laterally draws out the T-shaped copper sleeve by two hands with standing behind the stroller, turns forwardly the frame fixing hooks 40 on both sides to disengage from the frame supporting projections and holds the handrail portion 14 to thereby achieving the folding easily.

30 Next, the braking operation of the rehabilitation stroller of this invention will be described. Since both sides of the frame is symmetrical to each other and thus only one side of the braking device is shown for the simplicity. As shown in Fig. 6, the inside of the left and right wheels 36 of the rear leg portion 34 is provided with a braking means comprising a wire 50, two braking drums 52, and two braking flakes
35 54. Each braking flake 54 is provided with an upper blocking tab 55, a lower blocking tab 56 and a boss 57. The wire 50 is pivotally connected to the braking flake 54 by a hollow bolt (not shown). The wire 50 is restricted to pivotally swing between the upper blocking tab 55 and the lower blocking tab 56. The free end of

the wire passes through the braking flake 54 and the rear leg portion 34 and then are inserted into the hole of the braking drum 52. When the user intends to brake the stroller, he only needs to step on the bending portion of the wire 50 and then the wire 50 pivotally swings from the upper blocking tab 55 through the boss 57 to the lower blocking tab 56. When the wire 50 is held on the upper blocking tab 55, it is subjected to an inward elastic extrusion by the curved surface of the boss 57 and thus can not be inserted into the holes of the braking drum 52. Until the wire 50 reaches the lower blocking tab 56, since the curved surface of the boss 57 does not extrude the wire 50 any more, both ends of the wire 50 can be axially inserted into the holes of the braking drum 52 by its recovering force and thereby achieving the bi-directional braking in one step. The applicant wants to emphasize that the braking means of this invention is different from the prior art. The braking means of this invention employs the elastic restoring force of the wire to axially insert into the hole of the braking drum 52 whereas the braking means of the prior art is necessarily provided with a pedal, a braking rod and associated components. In this invention, only one wire is sufficient to achieve the braking and thus the total weight and cost of the stroller can be reduced.

(Second Embodiment)

Now, the second embodiment of the rehabilitation stroller of this invention will be described with reference to Fig. 7. For simplicity, only the difference between the first and second embodiments is described and similar parts of the second embodiment will be designated by the same reference numerals as those in the first embodiment. Unlike the first embodiment, the rehabilitation stroller of this embodiment is alternatively provided with a sunshade frame 13 between the backrest portions 10 so as to increase the supporting ability of the backrest portion 10. The backrest portion 10 is additionally provided with a side blocking tube 64 for sandwiching the frame fixing hook 40 between the backrest portion 10 and this side blocking tube 64. Thus, the frame fixing hook can only pivot in the gap between the backrest portion 10 and the side blocking tube 64 without any transverse displacement. The lower end of the side blocking tube 64 is connected to the backrest portion 10 and the sunshade frame 13 by a bolt 47 and an adjusting bolt 48 so as to fix the side blocking tube 64, the backrest portion 10 and the shelf frame 13 in parallel to each other. The upper end of the side blocking tube 64 is provided with a U-shaped clip 66 for receiving the handrail portion 14. The U-shaped clip 66 is provided with three backrest adjusting holes 11 for adjusting the angle of the backrest portion 10 with respect to the handrail portion 14. The handrail portion 14 is connected to the U-shaped clip 66 by the

backrest adjusting bolt 12. Fig. 9 is a side schematic view showing the relationship among the handrail portion 14, the U-shaped clip 66 and the side blocking tube 64.

Next, the operation of the frame fixing hook 40 of the second embodiment will be described with reference to Fig. 8. Unlike the first embodiment, with the combination of a link 70 and two springs 72, the frame fixing hook 40 of this embodiment can be operated by single hand or foot to achieve the folding of the stroller of this invention. The frame supporting projection 42 is welded on the seat portion 16. The frame fixing hook 40 is a quasi-oval steel plate. One end is connected to the backrest portion 10 by a spring, the other end is engaged with the frame supporting projection 42 by an open slot, and the upper middle portion is pivotally connected to the backrest 10 by the bolt 47 serving as the center of rotation. The middle portion of the frame fixing hook 40 is additionally provided with a closed slot. When the frame fixing hook 40 rotates, the closed slot can provide a space for the adjusting bolt 48 moving therein. The link 70 is welded between two frame fixing hooks 40. The user only needs to press down the link 70 to overcome the recovering force of the spring 72 and in turn cause the frame fixing hook 40 to pivot about the bolt 47. Then, the open slot of the frame fixing hook 40 disengages from the frame supporting projection 42 thereby achieving the folding of the stroller.

According to the above, in the rehabilitation stroller of this invention, the backrest portion can be adjusted based on the stature and the demand of the infant sat thereon. The forward folding of the stroller is very convenient for the user. Also, the stroller of this invention is much safer because of the efficiently braking device. Further, the simple structure thereof can significantly reduce the total weight and cost.

While this invention has been described by the above embodiments, it should be understood that this invention is not limited to this. Various modifications in material or structure can be carried out by those skilled in this art in view of the teaching of this invention. Therefore, as long as not departing from the spirit of this invention, such simple modification or equivalent change still falls in the scope of this invention defined by the appended claims.

List of Reference Numerals of Primary Elements

	10	backrest portion
	11	backrest adjusting hole
	12	backrest adjusting bolt
5	13	sunshade frame
	14	handrail portion
	16	seat portion
	18	seat inner tube
	20	front leg portion
10	22	pedal support
	24	pedal
	26	pedal lifting sleeve
	28	front wheel support
	30	front wheel
15	32	shelf portion
	34	rear leg portion
	36	rear wheel
	40	frame fixing hook
	42	frame supporting projection
20	44	rivet
	46	T-shaped copper sleeve
	47	bolt
	48	adjusting bolt
	49	sleeve
25	50	wire
	52	braking drum
	54	braking flake
	55	upper blocking tab
	56	lower blocking tab
30	57	boss
	64	side blocking tube
	66	U-shaped clip
	70	link
	72	spring
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